



Breastfeeding a preterm baby

Born too soon

The average pregnancy lasts for approximately 37 – 42 weeks. When born before 37 weeks of pregnancy, the baby is considered preterm. Worldwide, more than one baby in ten is born too soon every year.

Nutritional needs: challenges for preterm babies

Preterm babies are particularly vulnerable and have higher nutrient requirements than babies born at term. One reason for this is that they often miss the third trimester of pregnancy which is normally the period of greatest nutrient accumulation and growth.

The earlier in pregnancy that babies are born, the less developed their organs will be. To “catch-up” in growth and development, and to meet their body’s nutritional demands, babies born too soon need more energy, proteins, vitamins, and minerals.

Babies born too soon often miss the third trimester of pregnancy, which is normally a period of rapid growth, nutrient accumulation, and transfer of antibodies.

The digestive tract of preterm babies is immature. Functions such as intestinal movements, secretion of protective digestive substances, and the digestion and absorption of food are not yet mature.

The preterm baby’s brain is still very immature and develops rapidly during the last trimester of pregnancy.

Depending on the time they are born, preterm babies may have missed out on the transfer of antibodies across the placenta during the last period of pregnancy. Their immune systems are still immature with reduced immunity.

In the beginning, breastfeeding can be quite challenging for mothers of preterm babies, but there are many ways to feed mother’s milk to a preterm baby. In most cases, preterm babies are not able to be breastfed immediately after birth. Expression of milk (by hand or by using an electric pump) often is the best solution until breastfeeding is possible. Frequent expression of breast milk shortly after delivery helps to increase milk supply.

How preterm babies benefit from mother's milk

Mother's milk is the best form of nutrition for preterm born babies and should be given as soon as possible after birth.

Mother's milk contains multiple ingredients from which all newborn babies benefit in many ways. Breastfeeding supports immunity, growth, and development and is the optimal choice for both term and preterm babies.¹⁻⁶

Immunologic aspects

- Mother's milk protects babies against gastrointestinal and respiratory infections.
- Feeding breast milk results in reduced risk of NEC (Necrotising Enterocolitis), an acute inflammatory disease of the intestines and the most common gastrointestinal medical emergency occurring in neonates.

- Fats in breast milk are easily digested.
- Protective enzymes, hormones, and growth factors are important for intestinal growth and maturation.

Gastrointestinal aspects

Nutritional aspects

- Breast milk is well tolerated and digested in preterm babies.
- Colostrum, the first fluid provided by mothers during the first days after birth, is rich in immunologic components.
- Lipids and fatty acids are important for neurological and visual development.

- Skin-to-skin contact during breastfeeding, also called kangaroo care, gives baby and mother a feeling of emotional closeness.
- Skin-to-skin contact also stabilises cardiac frequency, blood oxygen, and breathing frequency in preterm babies.

Psychological aspects

Long-term outcome

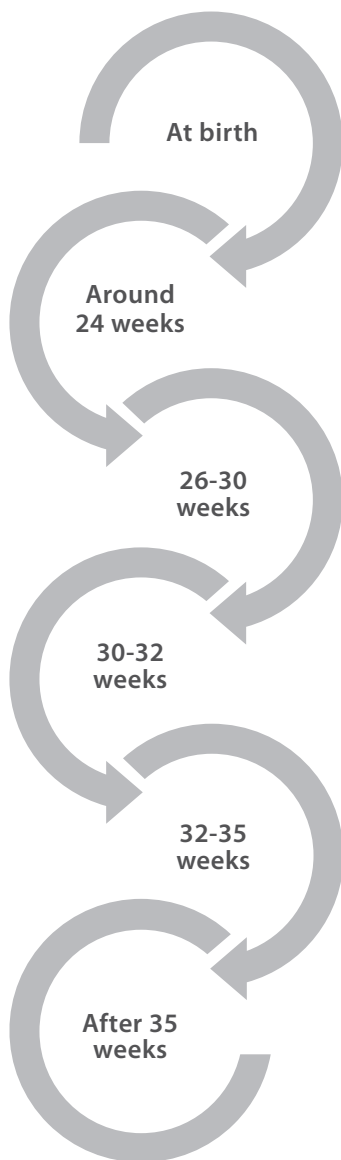
- There is a link between breastfeeding and decreased risk of overweight and obesity in adults and a lower risk of type II diabetes and high blood pressure in later life.
- Some studies reported risk reduction in breastfed children to develop clinical asthma, atopic dermatitis, or eczema.
- Breastfeeding may also improve the cognitive development of preterm babies later on.

Even though the breast milk from mothers of preterm babies contains higher protein levels, it is not sufficient to cover the baby's nutritional needs, as preterm babies have a much higher protein need than babies born at term. Therefore, the breast milk usually needs to be fortified with proteins and additional nutrients, once the initial phase of established enteral feeding has been completed. The fortifiers usually contain additional proteins, minerals, fats, and vitamins. The amount of fortifier added may be individually adjusted based on growth rates or laboratory values.⁷



How feeding abilities develop

Preterm babies go through several feeding stages until full breastfeeding is possible.



- Early and regular skin-to-skin contact (also called kangaroo care) enhances the development of the baby's feeding ability and triggers the milk production reflex in the mother.
- It might be necessary to start parenteral nutrition (intravenous feeding) after birth if the intestines cannot yet tolerate enough food, usually with combining parenteral and enteral (feeding by using a tube) nutrition.
- Very small amounts of milk are administered until the intestines get used to it.
- Preterm babies are able to make sucking movements and swallow, but not at the same time, so drinking milk is not yet possible.
- Enteral nutrition via nasogastric (from nose to stomach) or orogastric (from mouth to stomach) tube can be initiated as soon as the gastrointestinal tract is mature and is recommended for preterm babies as long as they cannot coordinate to drink, suck, swallow, and breathe.
- Preterm babies start developing a gag reflex.
- Some babies are already able to lick some drops of milk.
- Kangarooed babies start to turn their head towards the breast and may lick some drops of milk directly from the breast.
- Attempts to suck can be observed but babies are usually too weak to suck sufficiently at that time, so most feeds will still need to be through the nasogastric tube.
- Preterm babies will start to coordinate their ability to suck, swallow, and breathe.
- But most babies at that age are still weak and may get tired easily.
- Tube feeding is still needed in many cases.
- Preterm babies will gradually get better at sucking and will take more oral feeds.
- They may occasionally get tired and need a sporadic tube feed.
- They may need temporary support such as nipple shields, finger feeding, cup feeding, or bottle feeding. Healthcare professionals can help parents to find the optimal method.

The aim of nutritional support of a preterm baby is to achieve a growth rate as similar as feasible compared to a foetus in the womb at the same age. In order to reach the optimal growth rate, experts recommend starting to feed as soon as possible after birth. However, it may not always be possible to start full feeding immediately after birth. In these cases, parenteral or enteral feeding will be necessary.

How women benefit from breastfeeding

Breastfeeding can be beneficial for women by lowering the risk of bleeding after the delivery as well as the risk of breast and ovarian cancer. Skin-to-skin contact and breastfeeding may also reduce the risk of postpartum depression the months following birth.

Maternal diet and human milk composition

Maternal diet modulates the content of a number of nutrients in her breast milk. Therefore, women providing milk for their preterm babies should aim a healthy, balanced diet. Since preterm babies have particularly high needs of the omega-3 fatty acid DHA (its content in breast milk is directly influenced by maternal DHA intake), women should aim to consume at least two portions of sea fish per week, or/and consider taking a supplement with DHA. Additionally, supplementation of about 100 µg iodine/day is recommended.⁸



When providing milk is challenging

If mothers cannot provide enough breast milk, they can get helpful advice and support from a health-care professional or a lactation specialist. There is a wide range of possibilities for mothers to optimise milk production, e.g. regular breast milk expression (minimum 6-8 times per day), using a pump which is comfortable for the mother, and breast massage before milk expression. Even though the quantity of milk produced may seem low, every drop of milk is important for the baby.

A preterm mother's milk can also be supplemented with donor milk from an established human milk bank following certain safety guidelines, or with special formula for preterm babies. Healthcare professionals decide together with parents about the optimal way of nutrition according to the individual needs of the preterm baby.

Going home

At home, feeding is still crucial for the optimal growth and development of a preterm baby. Parents need to continue with adequate nutrition to ensure the optimal supply of nutrients suited to the child's age. Monitoring of growth and weight gain is usually recommended to continue at home to adapt the feeding to the changing requirements of the baby. Some preterm babies benefit from continued breast milk fortification, which may be recommended on an individual basis after hospital discharge.

About EFCNI

The European Foundation for the Care of Newborn Infants (EFCNI) is the first pan-European organisation and network to represent the interests of preterm and newborn infants and their families. It brings together parents, healthcare experts from different disciplines, and scientists with the common goal of improving long-term health of preterm and newborn children. EFCNI's vision is to ensure the best start in life for every baby.

For more information: www.efcni.org

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